

**In the Claims:**

1. (Withdrawn) A light management system comprising:  
a prism assembly having at least one beam splitting component utilizing a cholesteric layer configured to pass and reflect light beams to predetermined faces of the beam splitting component.

2. (Withdrawn) The light management system according to Claim 1, wherein the light management system is in a projection television.

3-4. (Canceled)

5. (Currently amended) ~~The prism assembly according to Claim 3,~~ A prism assembly, comprising:

an input beam splitter comprising an input face, a first exit face, and a second exit face;

a processing beam splitter comprising an input face and an exit face, wherein the input face of the processing beam splitter is coupled to the first exit face of the input beam splitter;

a cholesteric based beam splitter comprising an input face and an exit face, wherein the input face of the cholesteric based beam splitter is coupled to the second exit face of the input beam splitter; and

an output beam splitter having a first input face, a second input face, and an output face, wherein the first input face of the output beam splitter is coupled to the exit face of the processing beam splitter and the second input face of the output beam splitter is coupled to the exit face of the cholesteric beam splitter

wherein:

the cholesteric beam splitter comprises a dual cholesteric layer configured to,

direct a first part of a light beam entering the input face of the cholesteric based beam splitter to a first processing face of the cholesteric beam splitter,

direct a second part of the light beam entering the input face of the cholesteric based beam splitter to a second processing face of the cholesteric beam splitter, and

direct light beams emanating from the first and second processing faces to the exit face of the cholesteric based beam splitter.

6. (Original) The prism assembly according to Claim 5, wherein:

the output beam splitter is configured to direct light beams entering the first input face of the output beam splitter and light beams entering the second input face of the output beam splitter to the exit face of the output beam splitter.

7. (Original) The prism assembly according to Claim 5, wherein the input beam splitter, the processing beam splitter, the cholesteric based beam splitter, and the output beam splitter are arranged in a cube.

8-11. (Canceled)

12. (Currently amended) ~~The prism assembly according to Claim 10, A~~  
prism assembly, comprising:

an input beam splitter comprising an input face, a first exit face, and a second exit face;

a processing beam splitter comprising an input face and an exit face, wherein the input face of the processing beam splitter is coupled to the first exit face of the input beam splitter;

a cholesteric based beam splitter comprising an input face and an exit face, wherein the input face of the cholesteric based beam splitter is coupled to the second exit face of the input beam splitter; and

an output beam splitter having a first input face, a second input face, and an output face, wherein the first input face of the output beam splitter is coupled to the exit face of the processing beam splitter and the second input face of the output beam splitter is coupled to the exit face of the cholesteric beam splitter

wherein:

the cholesteric based beam splitter comprises a beam splitting component comprising two cholesteric layers; and

the cholesteric layers comprises a blue cholesteric for directing blue light to a first processing face of the cholesteric based beam splitter and a red cholesteric for directing red light to a second processing face of the cholesteric based beam splitter.

13. (Withdrawn) The prism assembly according to Claim 6, further comprising a quarter waveplate placed in a lightpath between the input beam splitter and cholesteric based beam splitter and configured to circularly polarize light entering the input face of the cholesteric based beam splitter.

14. (Withdrawn) The prism assembly according to Claim 13, wherein:  
the quarter waveplate is a right hand circular polarizer; and  
the blue and red cholesterics are mounted at 45 degrees to the lightpath and are reflective of light having different polarizations.

15. (Withdrawn) The prism assembly according to Claim 14, wherein one of the cholesterics is reflective of right hand polarized light and the other cholesteric is reflective of left hand polarized light.

16-18. (Canceled)

19. (Withdrawn) The prism assembly according to Claim 13, further comprising an additional quarter waveplate positioned in each lightpath directed by a cholesteric.

20. (Canceled)

21. (Withdrawn) A kernel, comprising:

a set of optical components configured to divide input light into separate light beams and direct each of the separate light beams into corresponding processing devices and recombine outputs of the processing devices into a kernel output light beam;

wherein at least one of the optical components comprises a cholesteric layer.

22. (Withdrawn) The kernel according to Claim 21, wherein the separate light beams comprise three separate light beams.

23. (Withdrawn) The kernel according to Claim 21, wherein the processing devices comprise processing devices configured to add content to its corresponding light beam.

24. (Withdrawn) The kernel according to Claim 21, wherein the processing devices comprise a red processing device configured to add red content to its corresponding light beam, a green processing device configured to add green content to its corresponding light beam, and a blue processing device configured to add blue content to its corresponding light beam.

25. (Withdrawn) The kernel according to Claim 21, wherein the processing devices comprise microdisplays.

26. (Withdrawn) A kernel assembly, comprising:  
a set of four beam splitting devices arranged in a cube; and  
three reflective microdisplays each individually and externally mounted on  
three faces of the beam splitting devices;  
wherein:  
one of the beam splitting devices is a cholesteric based beam splitter.

27. (Withdrawn) The kernel assembly according to Claim 26, wherein the  
kernel is configured to direct individual light beams to each of the three  
microdisplays and recombine reflections from the three microdisplays into an  
output light beam.

28. (Withdrawn) A prism assembly, comprising:  
a set of optical components arranged in pathlength matched positions such  
that optical distances from each set of processing faces of the optical components  
to a reference plane are equivalent; and  
at least one of the optical components comprises a cholesteric layer.

29. (Withdrawn) The prism assembly according to Claim 28, wherein the  
reference plane is a focal plane of the prism assembly.

30. (Withdrawn) The prism assembly according to Claim 28, wherein the  
reference plane is an output face of the prism assembly.

31. (Canceled)

32. (Withdrawn) The prism assembly according to Claim 31, wherein at  
least one face of the first component beam splitter along with two faces of the  
second component beam splitter are arranged in pathlength matched positions.

33. (Withdrawn) The prism assembly according to Claim 32, further comprising an optical coupling fluid disposed between at least two of the beam splitters.

34. (Withdrawn) The prism assembly according to Claim 33, wherein the optical coupling fluid is disposed between faces of at least two of the beam splitters.

35. (Withdrawn) The prism assembly according to Claim 31, further comprising an optical coupling fluid disposed between the beam splitters.

36. (Withdrawn) The prism assembly according to Claim 35, wherein the optical coupling fluid is an index matching fluid having an index of refraction closely matching an index of refraction of optical components contacting the coupling fluid.

37. (Withdrawn) The prism assembly according to Claim 35, wherein the optical coupling fluid is a mineral oil based fluid.

38-42. (Canceled)

43. (Withdrawn) The prism assembly according to Claim 42, wherein the cholesteric layer is configured to reflect light of a first polarization and pass light of a second polarization.

44. (Withdrawn) The prism assembly according to Claim 43, further comprising other optical components configured to present light beams to the cholesteric layer, wherein a first of the light beams is to be reflected by the cholesteric layer and a second of the light beams is to be passed by the cholesteric layer.

45. (Canceled)

46. (Withdrawn) The prism assembly according to Claim 42, wherein the at least one beam splitting component comprises 2 prism components oriented such that diagonals of the 2 prism components are facing each other and at least one cholesteric layer disposed between the diagonals of the prisms.

47. (Withdrawn) The prism assembly according to Claim 42, wherein three faces of the beam splitting components are arranged in pathlength matched positions.

48. (Withdrawn) The prism assembly according to Claim 42, wherein said at least one beam splitting component is arranged in pathlength matched position with respect to a second beam splitting component.

49-54. (Canceled)

55. (Withdrawn) A display device, comprising:  
a set of four beam splitting devices arranged in a cube; and  
three reflective microdisplays each individually mounted on three faces of the beam splitting devices and external to the cube;  
wherein:  
one of the beam splitting devices is a cholesteric based beam splitter.

56. (Withdrawn) The display device according to Claim 55, wherein the display device is a television.

57. (Withdrawn) A method of constructing a prism assembly comprising:  
fixing a set of beam splitting devices in position; and

filling voids between the beam splitting devices with an optical coupling fluid;

wherein at least one of the beam splitting devices comprises a cholesteric beam splitter.

58. (Withdrawn) The method according to Claim 57, wherein the cholesteric beam splitter comprises 2 prism components oriented such that diagonals of the 2 prism components are generally abutting each other and at least one cholesteric layer disposed between the diagonals of the prisms.

59. (Withdrawn) A prism assembly means, comprising:  
a cholesteric means; and  
at least one means for directing individual light beam paths internal to the prism assembly toward predetermined faces of the prism assembly means using the cholesteric means.

60. (Withdrawn) The prism assembly means according to Claim 59, wherein said at least one means comprises a set of beam splitting components having at least three faces arranged in pathlength matched positions.

61. (Withdrawn) A beam splitter, comprising  
a first optical element having a first beam splitting face;  
a second optical element having a second beam splitting face generally abutting the first beam splitting face; and  
a cholesteric layer disposed between the first and second beam splitting faces.

62. (Withdrawn) The beam splitter according to Claim 61, wherein the cholesteric layer is a dual cholesteric layer.



63. (Withdrawn) The beam splitter according to Claim 61, wherein the dual cholesteric layer comprises one of a red cholesteric layer and a blue cholesteric layer, a blue cholesteric layer and a green cholesteric layer, and a red cholesteric layer and a green cholesteric layer.

64. (Withdrawn) The beam splitter according to Claim 61, wherein:  
the first and second optical elements are prisms, and  
the first and second beam splitting faces are diagonals of the prisms.

65. (Withdrawn) The beam splitter according to Claim 64, wherein the prisms are held together at the diagonals via an optical adhesive.

66. (Withdrawn) The beam splitter according to Claim 65, wherein the cholesteric layer comprises a dual cholesteric layer.

67. (Withdrawn) The beam splitter according to Claim 66, wherein the dual cholesteric layer comprises one of a red cholesteric layer and a blue cholesteric layer, a blue cholesteric layer and a green cholesteric layer, and a red cholesteric layer and a green cholesteric layer.

68. (Withdrawn) The beam splitter according to Claim 67, wherein the cholesteric layers have different polarization sensitivities.

69. (Withdrawn) The beam splitter according to Claim 68, wherein:  
a first layer of the dual layer is reflective of right hand circular polarized light of a same color as the first cholesteric layer; and  
a second layer of the dual cholesteric layer is reflective of left hand circularly polarized light of a same color as the second cholesteric layer.

70. (Withdrawn) The beamsplitter according to Claim 61, wherein the first optical element and the second optical element are placed in pathlength matched positions.

71. (New) A prism assembly, comprising:  
a cholesteric layer configured to,  
reflect a first color of a polarized input light toward a first modulating device,  
pass a second color of the polarized input light toward a second modulating device,  
pass modulated light emanating from the first modulating device toward an output; and  
reflect modulated light emanating from the second modulating device toward the output.

72. (New) The prism assembly according to Claim 71, wherein the cholesteric layer comprises blue cholesteric material and red cholesteric material.

73. (New) The prism assembly according to Claim 71, wherein:  
the polarized input light is circularly polarized in a first direction; and  
the cholesteric layer comprises a first part reflective of the first color of the circularly polarized input light and a second part reflective of light in the second color but circularly polarized in a second direction.

74. (New) The prism assembly according to Claim 73, wherein the second direction is opposite the first direction.

75. (New) The prism assembly according to Claim 71, wherein the cholesteric layer is disposed on a diagonal of a beam splitter.

76. (New) The prism assembly according to Claim 71, further comprising a beam splitter comprising two prisms mated along diagonals of the prisms, wherein the cholesteric layer is disposed on at least one of the prism diagonals.

77. (New) The prism assembly according to Claim 76, wherein the beam splitter comprises a pathlength matched beam splitter.

78. (New) The prism assembly according to Claim 76, wherein the prisms are low precision prisms fixed in pathlength matched positions.

79. (New) The prism assembly according to Claim 76, wherein the beam splitter is liquid coupled to other beam splitters in the prism assembly.

80. (New) The prism assembly according to Claim 71, wherein the cholesteric layer comprises one of red and green cholesterics, blue and green cholesterics, and blue and red cholesterics.

81. (New) The prism assembly according to Claim 71, wherein at least one of the modulating devices comprises a Liquid Crystal on Silicon (LCoS) microdisplay.

82. (New) A device, comprising:  
a beam splitter comprising an input face, and output face, a first processing face, and a second processing face; and a beam splitting layer;  
a first reflective modulating device attached to the first processing face; and  
a second reflective modulating device attached to the second processing face;  
wherein:  
the beam splitting layer comprises,

a first cholesteric layer that, reflects a portion of light entering the device from the input face toward the first processing face, and passes modulated light from the first reflective modulating device toward the output face, and

a second cholesteric layer that, passes a second portion of light entering the device from the input face toward the second modulating face, passes the modulated light from the first reflective modulating device toward the output face, and reflects modulated light from the second reflective modulating device toward the output face.

83. (New) The device according to Claim 82, wherein the beam splitter is constructed from two low tolerance prisms fixed in pathlength matched positions.

84. (New) The device according to Claim 82, wherein the modulating devices are Liquid Crystal on Silicon (LCoS) microdisplays.

85. (New) The device according to Claim 82, wherein the device is installed in a High Definition Projection Television.

86. (New) A prism assembly, comprising:  
an input PBS positioned to split input light into first and second light beams;  
a processing PBS and a first modulating device configured to modulate the first light beam with first color data to produce a first modulated light beam;  
a cholesteric based beam splitter and combiner configured to,  
direct a first part of the second light beam toward a second modulating device configured to modulate the first part with second color data,  
direct a second part of the second light beam toward a third modulating device configured to modulate the second part with third color data, and  
combine the first and second modulated parts of the second light beam to produce a second modulated light beam; and

an output combiner configured to combine the first modulated light beam and the second modulated light beam to produce an output modulated light beam.

87. (New) The prism assembly according to Claim 86, wherein at least one of the modulating devices is a Liquid Crystal on Silicon (LCoS) microdisplay.

88. (New) The prism assembly according to Claim 86, wherein the prism assembly is installed in a projection television.

89. (New) A quad style prism assembly, comprising:  
a prism assembly divided into 4 equal sized quadrants, each quadrant comprising a beam splitter;  
the first quadrant comprising an input beam splitter positioned to split input light into first and second light beams;  
the second quadrant comprising a processing PBS and a modulating device configured to modulate the first light beam with a first color;  
the third quadrant comprising a cholesteric based beam splitter and second and third modulating devices configured to, separate the second light beam into separated light beams, modulate second color data into a first of the separated light beams, modulate third color data into a second of the separated color light beams, and then recombine the separated light beams; and  
the fourth quadrant comprising an output PBS configured to recombine the modulated light beams.

90. (New) The quad style prism assembly according to Claim 89, wherein:  
each beam splitter comprises,  
a first prism having a diagonal;  
a second prism having a second diagonal, and  
a beam splitting layer disposed on at least one of the first and second diagonals;

wherein the first prism is abutted to the second prism along the first and second diagonals in a pathlength matched position.

91. (New) The quad style prism assembly according to Claim 89, wherein the cholesteric based beam splitter comprises the cholesteric beam splitter comprises a dual cholesteric layer configured to,

direct a first part of a light beam entering the cholesteric based beam splitter to the second modulating device,

pass a second part of the light beam entering the cholesteric based beam splitter to the third modulating device,

pass modulated light emanating from the second modulating device toward an exit of the cholesteric beam splitter, and

direct modulated light emanating from the third modulating device to the exit of the cholesteric based beam splitter.

92. (New) The quad style prism assembly according to Claim 89, wherein the modulating devices are Liquid Crystal on Silicon (LCoS) microdisplays and the quad style prism assembly is installed in a High Definition Projection Television.